ABSTRACT OF THE INVENTION

A programmable optical add/drop multiplexer (OADM) implements add/drop function of optical signals from a number of cross-connected optical systems while treating issues of coherent cross-talk, chromatic dispersion, slope of dispersion and amplitude equalization. Input WDM (wavelength division multiplexed) optical signals from a number of optical systems are each de-multiplexed into a number of optical path signal that are routed through switches and then multiplexed into a number of output WDM optical signals. Problems with coherent cross-talk in optical path signals are eliminated by introducing equivalent optical path lengths between paths through which the optical path signals propagate and by introducing dead-bands between consecutive optical path signals. Chromatic dispersion, slope of dispersion and amplitude equalization compensation provide common values of chromatic dispersion, slope of dispersion and power for respective optical path signals at the switches and provide respective target values, at outputs, satisfying transmission requirements of a respective optical system.